PENDULUM MOTION   SLIDING PENDULUM MOTION

PERIOD $T = 2\pi\sqrt{R/g}$

FIG. 1

FIG. 2

COMPOUND PENDULUM MOTION   SLIDING COMPOUND PENDULUM MOTION

PERIOD $T = 2\pi \sqrt{R_{c.g}/g + L_{o.o}/(W.R)}$

FIG. 3

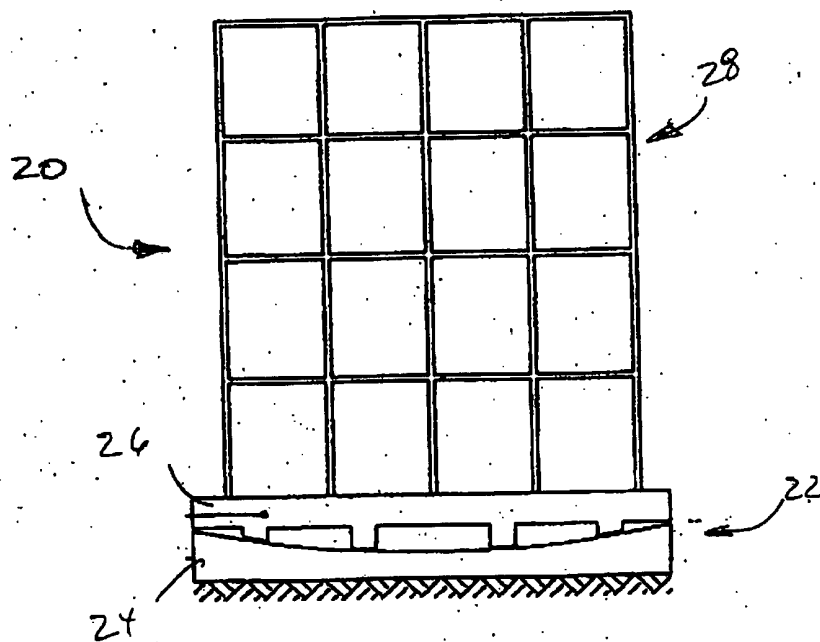(a)   (b)
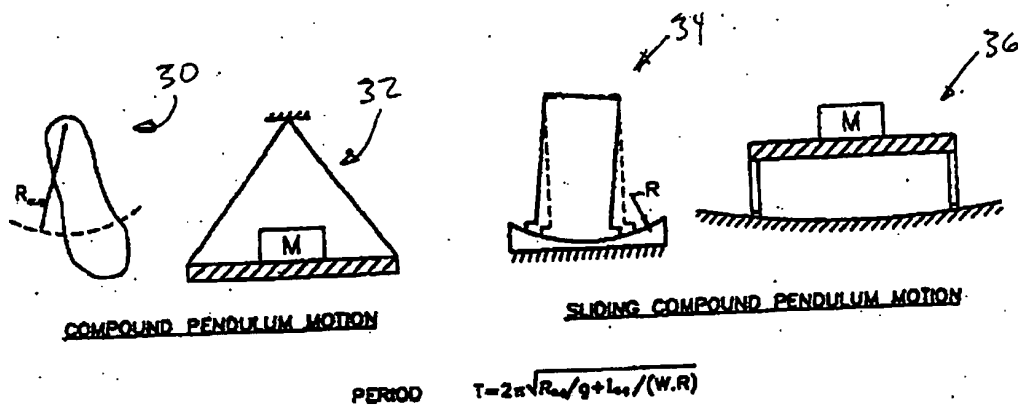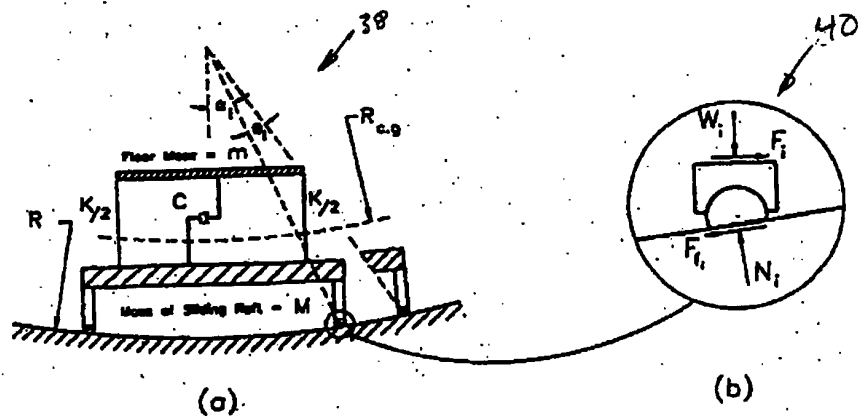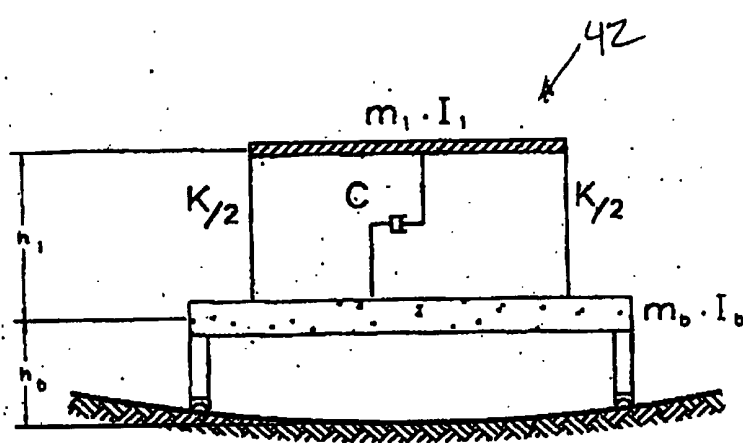
FIG. 4

FIG. 5

$m_1 = 350.2$ kg
$I_1 = 4109$ $kg-m^2$
$m_b = 350.2$ kg
$I_b = 4109$ $kg-m^2$
$K = 8.64 \times 10^4$ N/m
$C = 550.1$ N.sec/m
$T = 0.4$ sec
$R = 15.0$ m
$h_1 = 6.0$ m
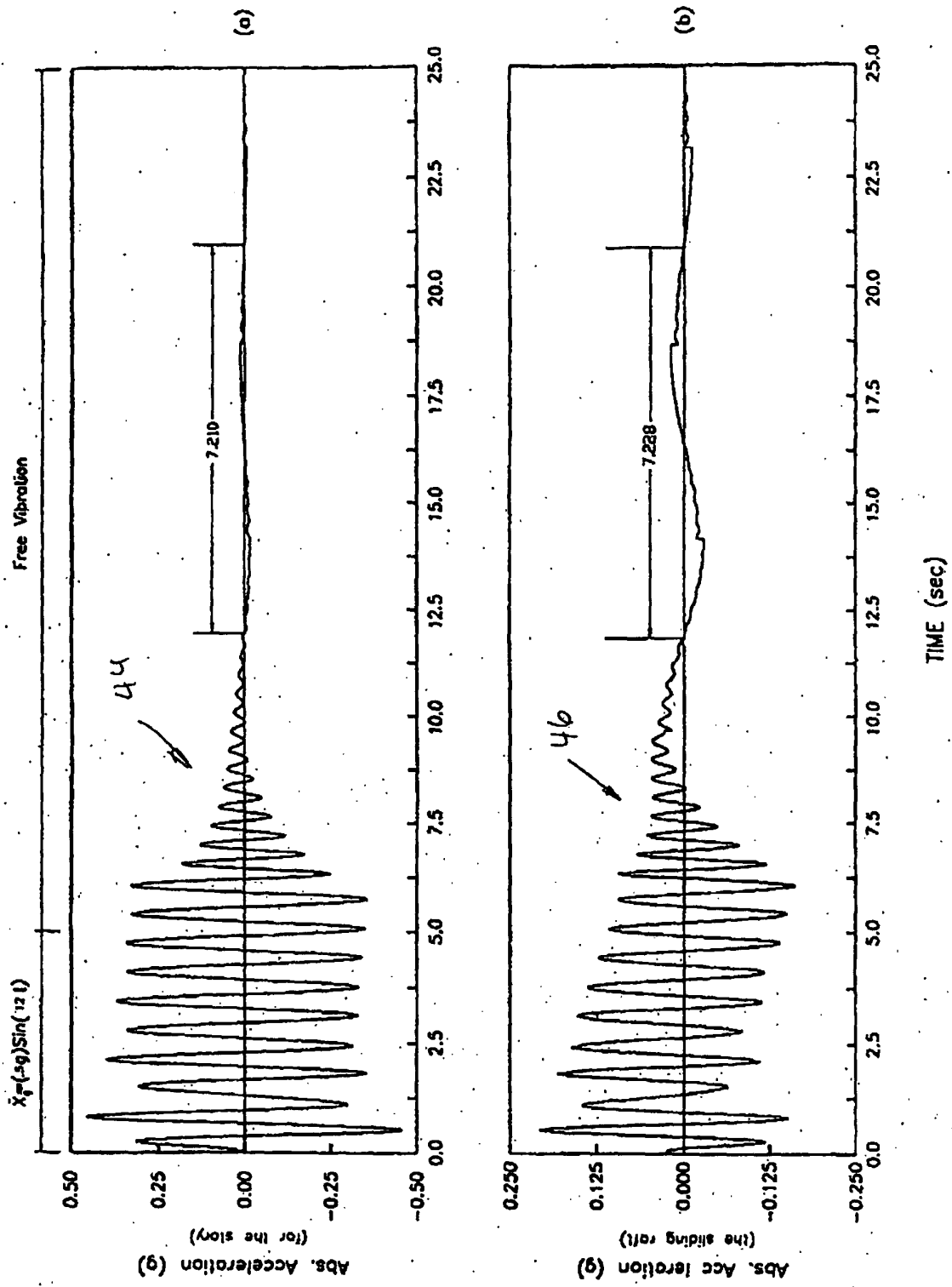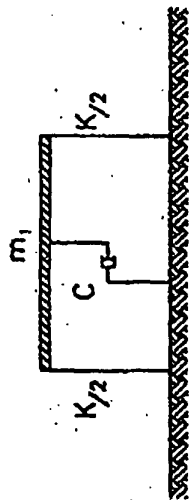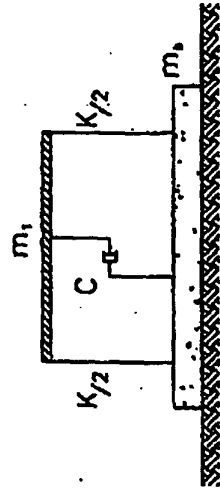$h_b = 1.0$ m
$\mu = 0.08$
$\zeta = 0.05$

FIG. 6

FIG. 7

(a) 48

$m_1 = 350.2$ kg
$K = 8.64 \times 10^6$ N/m
$C = 550.1$ N.sec/m
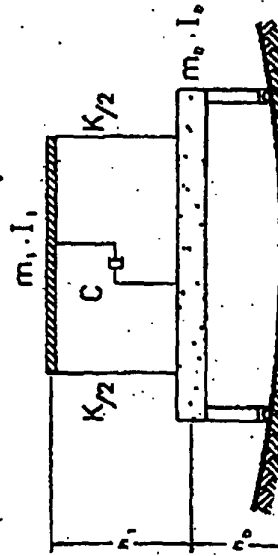$T = 0.4$ sec
$\zeta = 0.05$

(b) 50

$m_1 = 350.2$ kg
$m_b = 350.2$ kg
$K = 8.64 \times 10^6$ N/m
$C = 550.1$ N.sec/m
$T = 0.4$ sec
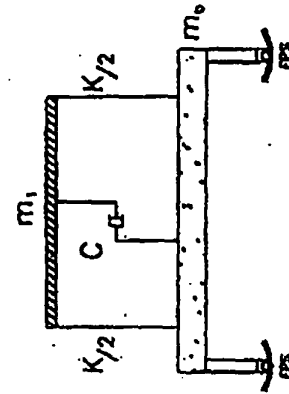$\mu = 0.08$
$\zeta = 0.05$

(c) 52

$m_1 = 350.2$ kg
$I_1 = 4109$ kg-m²
$m_b = 350.2$ kg
$I_b = 4109$ kg-m²
$K = 8.64 \times 10^6$ N/m
$C = 550.1$ N.sec/m
$T = 0.4$ sec
$R = 31.0$ m
$h_1 = 6.0$ m
$h_b = 1.0$ m
$\mu = 0.08$
$\zeta = 0.05$

(d) 54

$m_1 = 350.2$ kg
$m_b = 350.2$ kg
$K = 8.64 \times 10^6$ N/m
$C = 550.1$ N.sec/m
$T = 0.4$ sec
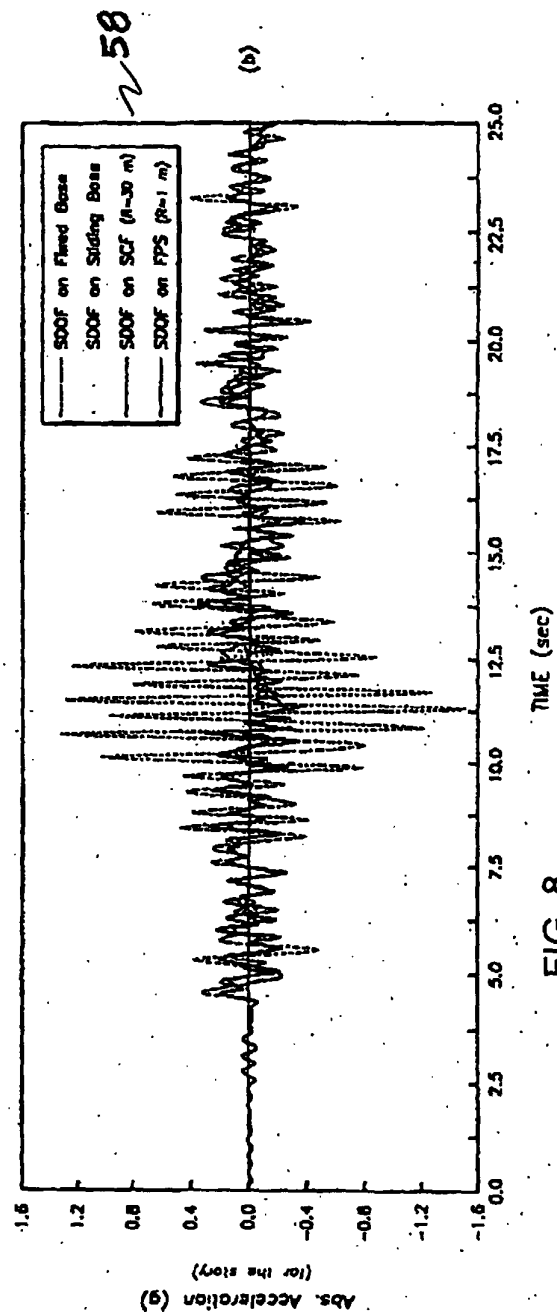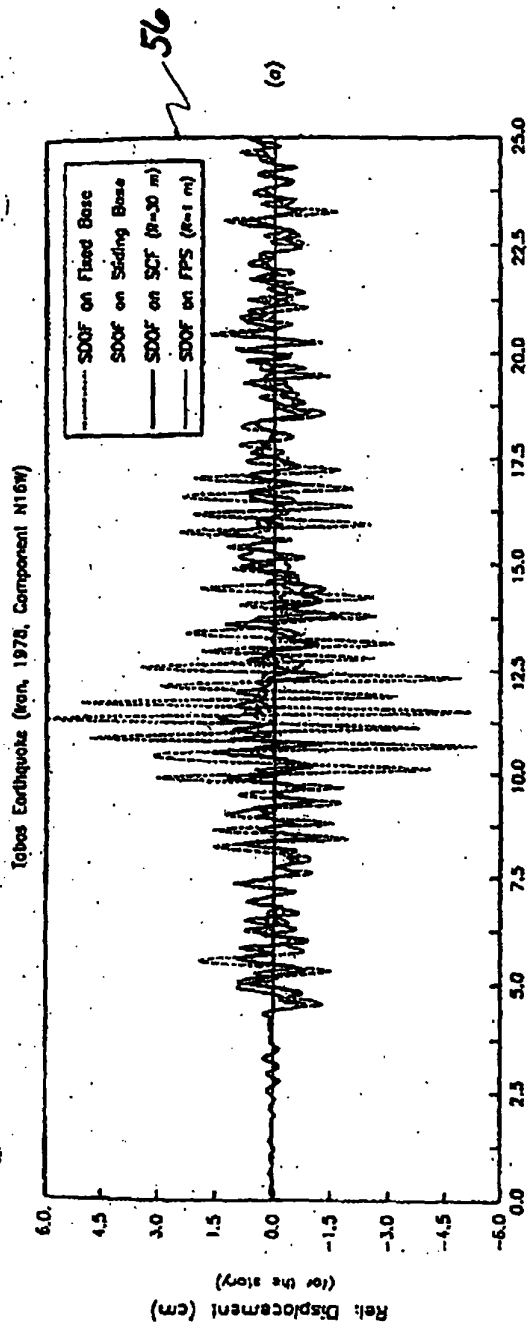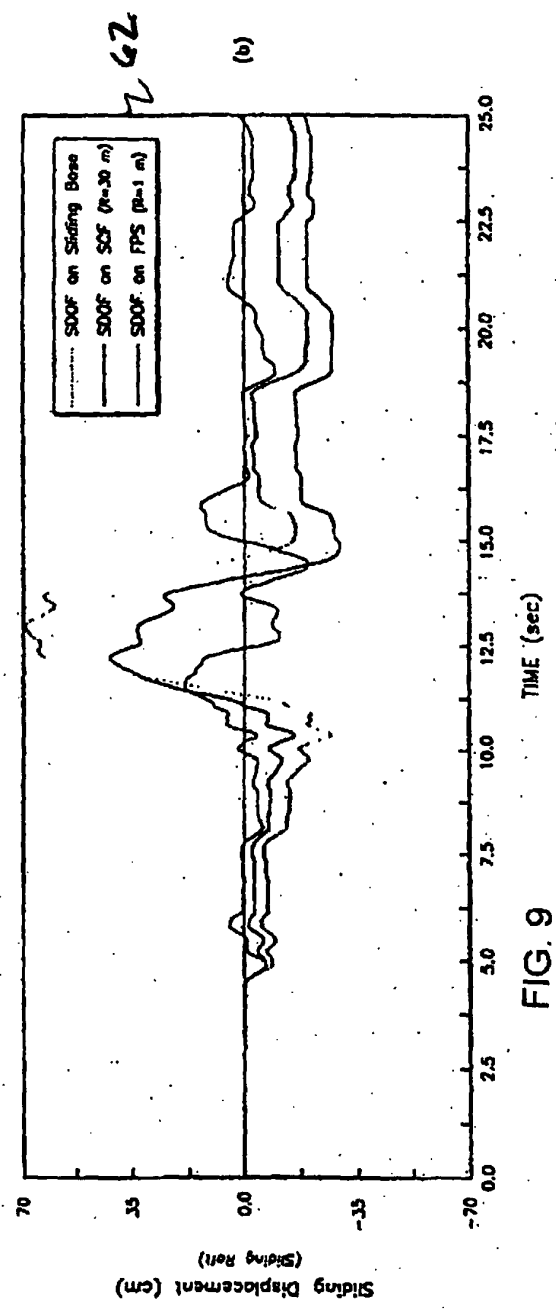$R = 1.0$ m
$\mu = 0.08$
$\zeta = 0.05$

FIG. 8

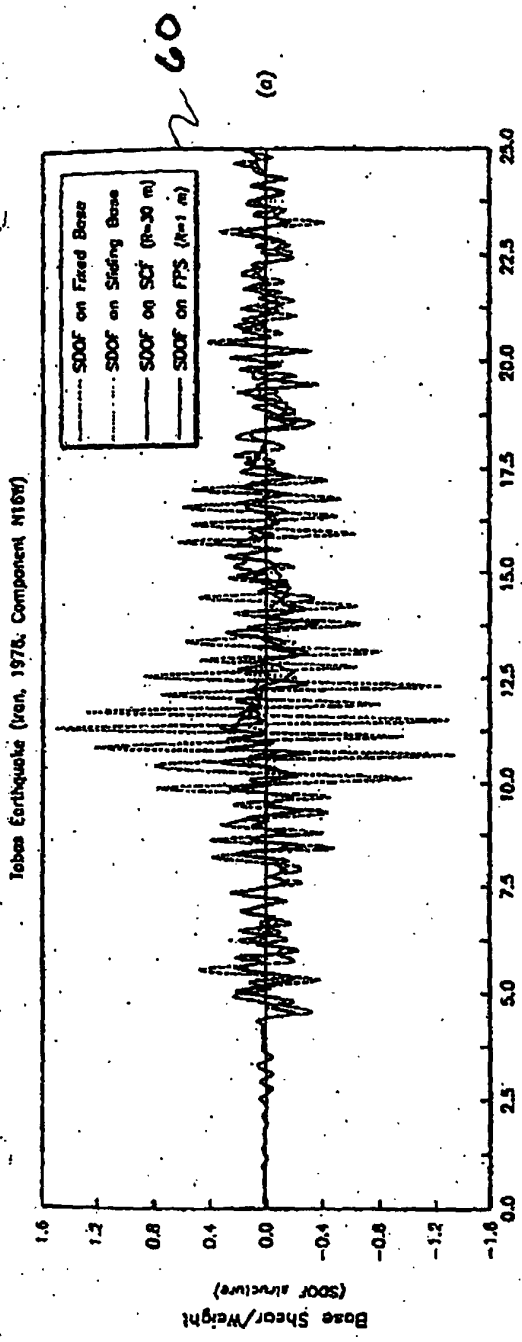FIG. 9

Harmonic excitation: $\ddot{X}_F(.5g)\sin(4t)$

(a)

(b)

TIME (sec)

FIG. 10

Harmonic excitation: $\ddot{X}_g = (.5g)\sin(4t)$

(a)

268

(b)

270

FIG. 11

FIG. 12

Bronze Bushing

PIN

4-HSS 38x38x3.2 Profiles

120x20mm Steel Strip, L=1060mm

1000mm

R= 2500mm

NORTH

SOUTH

SHAKING TABLE

150

1090
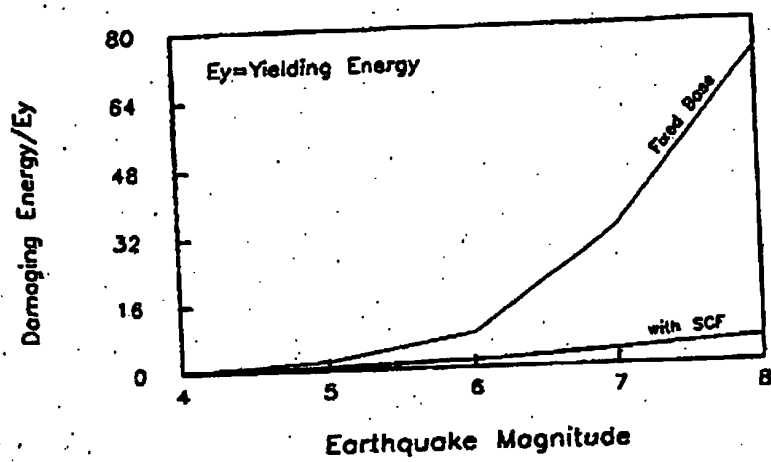
200
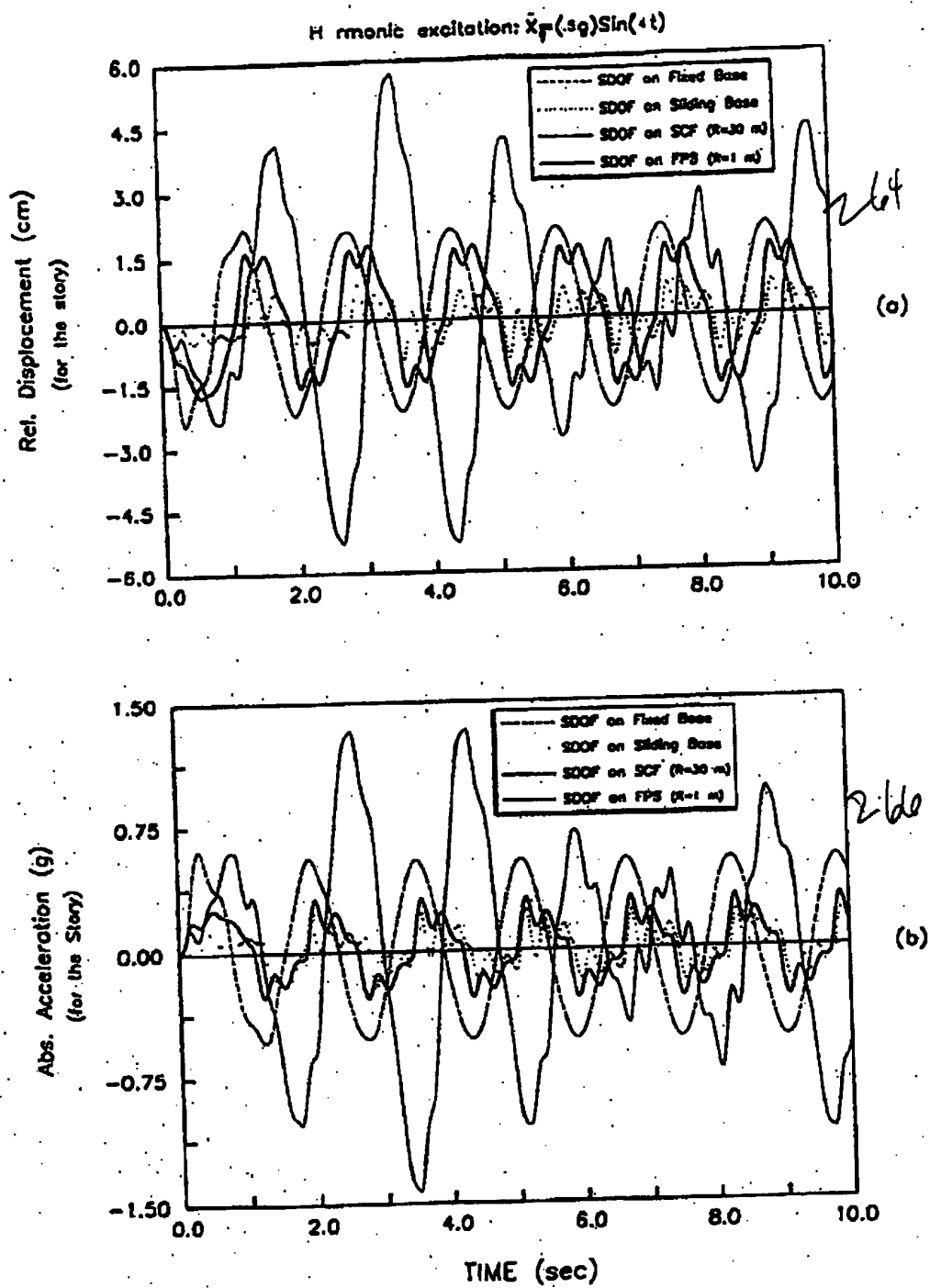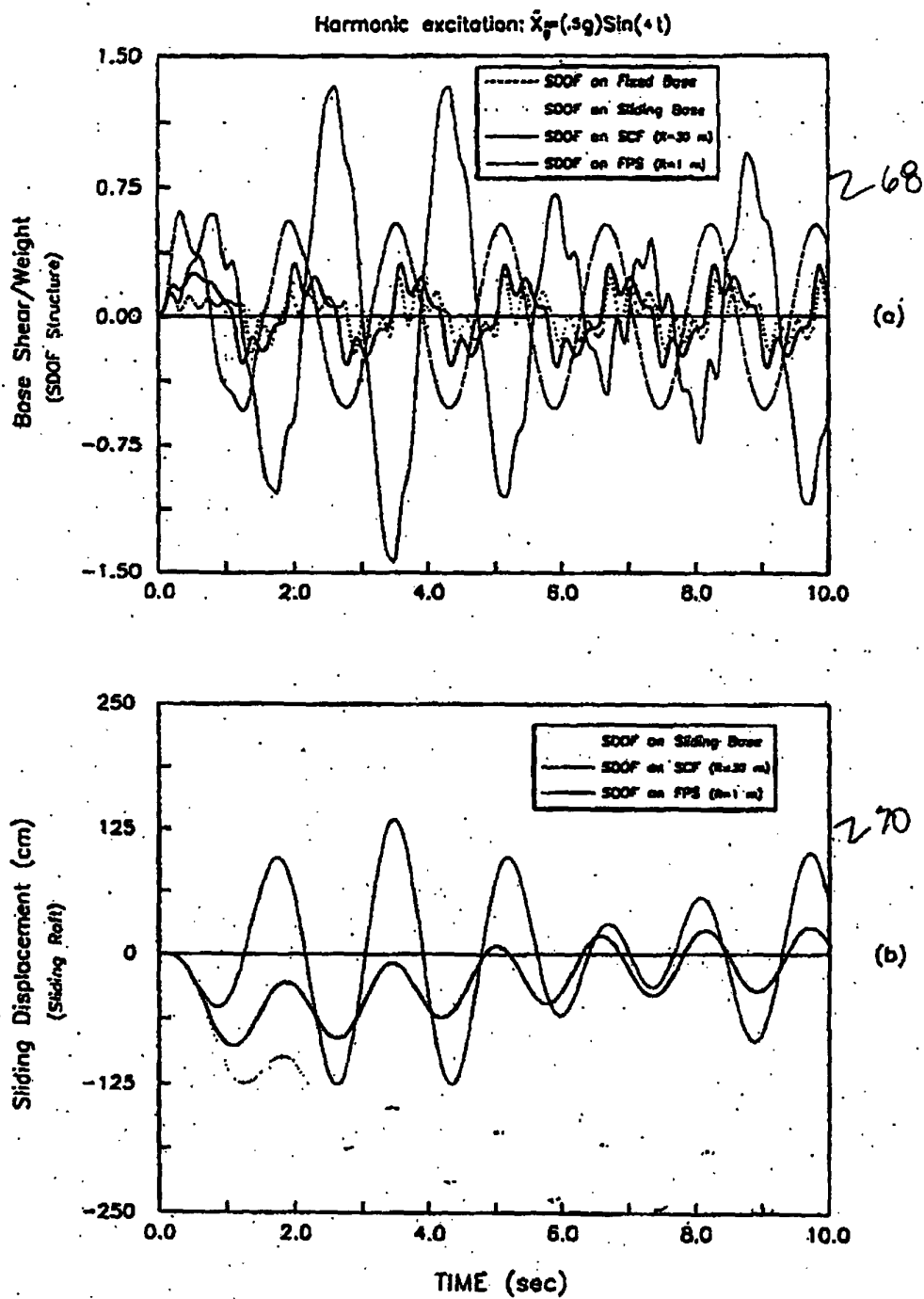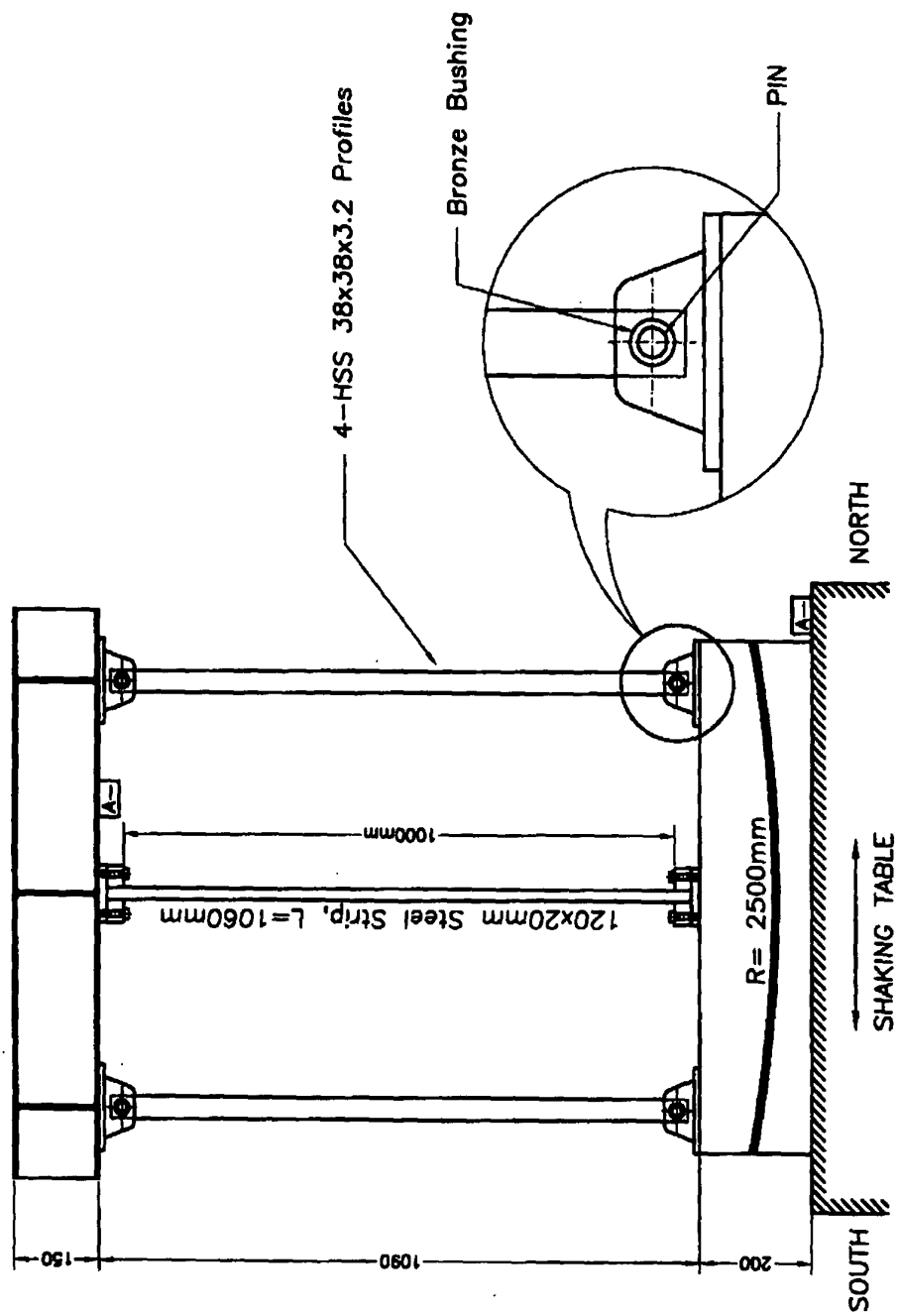
Figure 13

Performance of SCF system: Experiment vs Analysis

— Floor Acceleration (Fixed Base-Theory)
— Floor Acceleration (SCF-Experiment)
--- Floor Acceleration (SCF-Theory)

Time (sec.)

Accel ration (m/sec²)

FIG. 14